BIG CYPRESS BASIN

SOUTH FLORIDA

WATER MANAGEMENT DISTRICT

FIVE YEAR PLAN 2006 - 2010

Adopted – April 27, 2006

I. Introduction

This update of the Big Cypress Basin Five Year Plan has been formulated to reevaluate the Big Cypress Basin's ongoing action plans and programs, and to develop new programs for the 2006 – 2010 period to fulfill the Basin's statutory missions. The primary functions of this process are to:

- Identify and prioritize the Basin's objectives
- Outline and define specific programs for accomplishing the objectives
- Estimate costs for funding and implementing the programs
- Prepare a schedule for program implementation

Since its inception in 1977, the Big Cypress Basin has formulated a series of Five Year Plans to outline plans for achieving its broad range of water management objectives. Proper resource planning guidelines require that the programs and schedules be reviewed periodically to assess the progress and additions, such that amendments can be made accordingly. Due to the rapid growth of the region during the last two decades and the accompanying new vistas of emerging issues related to water supply, flood protection, water quality, and natural ecosystems, it is necessary that the Basin's programs be examined on a regular cycle. Other important factors, such as limitations in the availability of resources to carry out the plans, as well as changes or unavoidable delays in implementation of programs, necessitate review and reprioritization. Such review will enable the Basin and the public to determine the effectiveness of plan formulation and implementation, and provide direction for future projects.

The Five Year Plan for the 2006 - 2010 period reflects the changing needs and priorities in the Basin. Some of the factors that influenced reassessment of the priorities

of capital projects planning and construction set forth in the earlier Five Year Plan are the inadequate capacities of the older Basin facilities to meet the levels of service for flood protection, conservation storage, water supply, and environmental enhancement. Implementation of three ecosystem restoration projects – namely Lake Trafford, Tamiami Trail Flow Enhancement, and Picayune Strand Restoration, have added additional responsibilities and commitments that need to be incorporated into the Basin's work plans and budgets.

Accordingly, the 2002 - 2006 Five Year Plan adopted by the Basin Board on January 25, 2002 has been revised by this update to incorporate the ever changing needs for protection and enhancement of the water and environmental resources of the Basin.

II. Planning Update

Existing and Proposed Big Cypress Basin Programs

Program Objectives

The major programs presently carried out by the Basin are designed solely for the purpose of fulfilling the primary missions of the Basin to manage water resources for the public's health, safety, and welfare. The elements of these missions are flood control, enhancement of water supply, water quality, and environmental protection. The basic framework of the missions was instituted in conformity with the policies and objectives of the District's 10 Year Strategic Plan, while addressing the local resource needs within a five year planning horizon. The salient objectives of the mission statement are listed below to emphasize their significance.:

1. Identify, qualitatively and quantitatively, water resources available in the Basin
2. Develop plans for conservation, preservation, and development of water resources
3. Conduct efficient operation and maintenance activities upon existing Basin water management facilities
4. Undertake construction of Basin works to facilitate water resource management
5. Assist other public entities' efforts in management of water resources in the Basin

6. Educate the public on water resource issues, including student and adult programs and policies, to generate awareness of water conservation and protection of the environmental resources of the region

The foregoing statements will continue to form the core of the objective functions of the Basin to carry out its statutory duties, such as preparing an annual budget, tracking compliance, and progress in carrying out its mission.

Existing Programs

Within the framework of the statutory responsibilities and objectives of fulfilling the primary missions of the District for enhancement of water supply, flood control, environmental protection, and water quality protection, the following set of specific program activities were initiated and are presently being carried out by the Basin.:

1. Management of Basin Affairs
2. Water Management Planning
3. Operations and Maintenance
4. Capital Improvement Construction
5. Local Government Assistance
6. Water Conservation Education/Public Awareness Program

The thrust of existing activities and those proposed during the 2006 - 2010 planning period under each of the above programs are discussed in the following sections.

1. Management of Basin Affairs

The overall administration of all programs in the Basin is performed under the auspices of this program. This includes preparation of an annual operating budget for approval by the Big Cypress Basin Board (BCBB) and the District Governing Board, coordination with local governments and the public, and all other related administrative functions. Meetings of the Basin Board are held for conducting the affairs of the Basin. Public input is considered, policies are established, programs for implementation are set forth, budgets are developed, and directives are issued to the staff for execution of the program functions.

Per Section 373.0695(3), Florida Statutes, the BCBB is authorized to adopt water conveyance and control facilities as "Works of the Basin." Presently, the Basin has the responsibility for operating, maintaining, and providing planning and capital improvement to 169 miles of primary canals and 46 water control structures (Table 1, Figure 1).

Programs outlined in the previous five year plans have been modified to address the changing needs of the Basin. The rapid growth of Collier County has stimulated significant concerns regarding efficient management of the water and environmental resources of the region. The resulting increased responsibilities for planning, construction, operation and maintenance of additional facilities, and innovative water resource management strategies require that this program be maintained to efficiently provide the services necessary to meet resource management needs. Additional staff needs may be considered and reviewed each annual budget of the upcoming five year planning cycle.

Table 1

Works of the Basin
January 1, 2006

Canals	Miles	Acres
1. Golden Gate Main Canal	27.25	
2. Golden Gate Main Side Branch	2.00	
3. I-75 Canal	7.00	
4. Airport Road Canal	7.25	
5. Faka Union Canal	29.50	
6. Miller Canal	18.75	
7. Cypress Canal	8.00	
8. Merritt Canal	12.00	
9. Prairie Canal	10.00	
10. Henderson Creek Canal	6.75	
11. Cocohatchee Canal	12.00	
12. S.R. 29 Canal	6.00	
13. CR 951 Canal	7.25	
14. Corkscrew Canal and its Side Branches	6.25	
15. Curry Canal	2.00	
16. Green Canal	3.00	
17. Orangetree Canal	2.25	
18. C-1 Connector Canal	1.75	
19. Lake Trafford		1,600
TOTAL MILES OF CANALS	169.00	

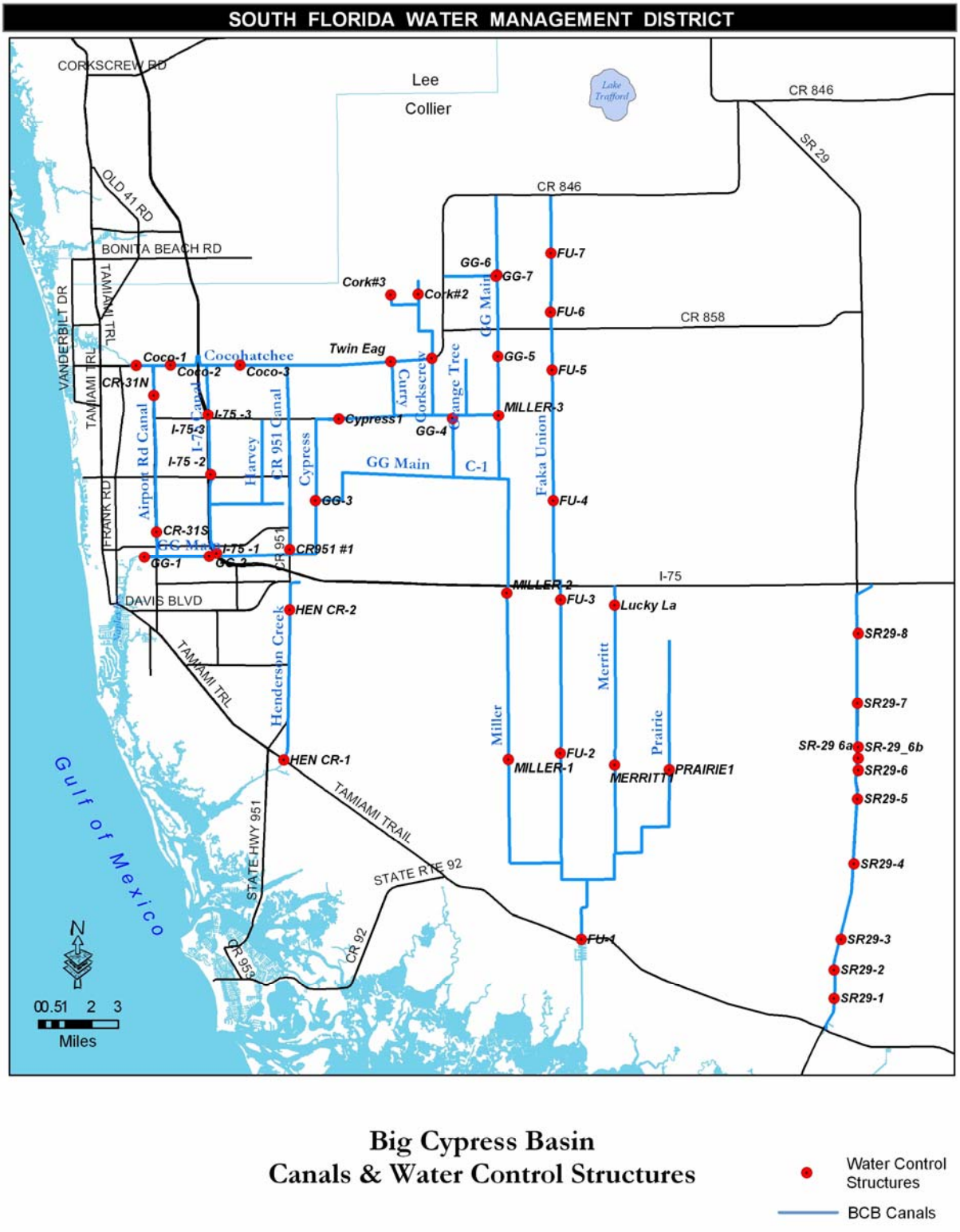
Table 1 (continued)
Works of the Basin

Water Control Structures

1. Golden Gate Canal Weir No. 1
2. Golden Gate Canal Weir No. 2
3. Golden Gate Canal Weir No. 3
4. Golden Gate Canal Weir No. 4
5. Golden Gate Canal Weir No. 5
6. Golden Gate Canal Weir No. 6
7. Golden Gate Canal Weir No. 7
8. I-75 Canal Weir No. 1
9. I-75 Canal Weir No. 2
10. I-75 Canal Weir No. 3
11. Cypress Canal Weir No. 1 (4A-1)
12. Airport Road Canal North Amil Gate
13. Airport Road Canal South Amil Gate
14. Faka Union Canal Weir No. 1
15. Faka Union Canal Weir No. 2
16. Faka Union Canal Weir No. 3
17. Faka Union Canal Weir No. 4
18. Faka Union Canal Weir No. 5
19. Faka Union Canal Weir No. 6
20. Faka Union Canal Weir No. 7
21. Miller Canal Weir No. 1
22. Miller Canal Weir No. 2
23. Miller Canal Weir No. 3
24. Merritt Canal Weir No. 1
25. Prairie Canal Weir No. 1
26. S.R. 29 Canal Weir No. 1
27. S.R. 29 Canal Weir No. 2
28. S.R. 29 Canal Weir No. 3
29. S.R. 29 Canal Weir No. 4
30. S.R. 29 Canal Weir No. 5
31. S.R. 29 Canal Weir No. 6
32. S.R. 29 Canal Weir No. 6A
33. S.R. 29 Canal Weir No. 6B
34. S.R. 29 Canal Weir No. 7
35. S.R. 29 Canal Weir No. 8
36. Henderson Creek Weir No. 1
37. Henderson Creek Weir No. 2
38. Cocohatchee Canal Weir No. 1
39. Cocohatchee Canal Weir No. 2
40. Cocohatchee Canal Weir No. 3
41. Lucky Lake Water Control Structure
42. Corkscrew Canal Weir No. 1
43. Corkscrew No. 2
44. Corkscrew No. 3
45. CR 951 Canal Weir No. 1
46. Twin Eagles Weir

TOTAL: 46 Structures

Figure 1 - Works of the Basin



2. Water Management Planning

Section 373.0695(1)(a), Florida Statutes specifically defines one of the primary responsibilities of the Basin as "preparation of engineering plans for development of the water resources of the Basin and the conduct of public hearings on such plans." In addition to development of plans for "primary works," this Statute specifies that Basin funds can also be utilized for preparation of overall Basin plans of secondary water control facilities for guidance of sub-drainage districts and private owners who wish to connect their water control systems to the primary “Works of the Basin” to make use of the engineering plans of the primary works. Chapter 373, Florida Statutes also provides for proper planning and management of water and related land resources for flood protection, reduction of excessive drainage and soil erosion, and provides the basis for the development of regulating criteria for management of surface and groundwater resources of the Basin.

During the last 28 years, the Basin took an aggressive role in conducting detailed inventories and evaluating the resources of the region for developing preliminary water management plans for a number of primary basins. In addition to the specific Basin studies, numerous planning studies were performed in connection with the feasibility analyses and preliminary engineering evaluation of the capital improvement projects of the Basin works. Most of the recommended plans from these studies have been implemented. In some cases, however, more detailed analysis, including incorporation of detailed topographic mapping, are needed to develop implementable engineering plans. Also, in some cases, public apathy to the course of action resulted in the delay of implementation of the plans. In other cases, the recommendations could not be

implemented due to questions raised about environmental effects that necessitated additional analyses.

Per statutory provisions of Section 17-40 of Florida Administrative Code, the Florida Department of Environmental Protection (FDEP) requires the Water Management Districts to develop watershed management goals for all watersheds within the boundaries of each District. As per the requirements of the subject Water Policy document, these goals shall be considered in local comprehensive plans submitted or updated in accordance with Section 403.0891(3) (a), Florida Statutes.

2. a Hydrologic Monitoring and Operation

Program Overview

One integral element of Water Management Planning is a monitoring program to collect continuous data on rainfall, evaporation, surface and groundwater levels, stream flow, and water quality. Presently, the Basin's monitoring network includes 106 stations, with data collected at several of these stations through cooperation of several public agencies and private volunteers (Table 2). The data collected by the Basin's hydrologic monitoring and operation network is processed for storage and retrieval at the District's Hydrologic and Water Quality Database (DBHYDRO).

Recent introduction of the telemetry system known as DMS/LoggerNet has resulted in numerous changes to the hydrologic monitoring and operation program. These changes are the direct result of the DMS/LoggerNet software evolution for real-time remote data acquisition and monitoring. The program has now been expanded to include parameters for electronic control with the ability for remote supervisory operation of water control facilities. The staff is presently developing web-based public access to

real-time data at all active telemetry sites within the Basin. A meta-database of all research and monitoring activities of the Basin is also maintained under contract by the Florida Fish and Wildlife Research Institute. This database is an index of all research and monitoring activities, and is publicly accessible at http://ocean.floridamarine.org/bcb.

The availability of telemetric real-time hydrologic monitoring and operation data continues to improve response time for Basin staff to changing hydrologic conditions, and enhances the Basin's ability to meet the public's needs during storm events and drought conditions. As advancements in telemetric hydrologic monitoring and operation technologies progress, the Basin will continue to work toward application of new technologies to the hydrologic monitoring and operation network for efficient planning and management of the regional water resources.

In view of such continuing changes in the responsibilities of the Basin, the resource planning efforts identified in the 2002 - 2006 Five Year Plan have been reevaluated and reprioritized, and the following schedule of water management planning efforts are outlined for the 2006 - 2010 period.

Table 2 – Hydrologic Monitoring Stations

	Site Name	STATION NAME	PARAMETERS											
			Stage	Head Water	Tail Water	Rainfall	Gates	Wells	Water Quality	Evaporation	Temperature	Wind Speed	Supervisory Control	Telemetry
1	BCBNAPLE	BCB Field Station				X				X	X			
2		Big Corkscrew Fire Sta. # 10				X								
3		Big Corkscrew Fire Sta. # 11				X								
4	BCYP7	Miller Canal @ 26th Ave. SE	X											
5		Bonita Springs Utilities				X								
6	COC951	Cocohatchee Canal @ CR 951	X						X					X
7	COCO1	Cocohatchee Canal @ Weir # 1		X	X	X	X		X					X
8	COCO2	Cocohatchee Canal @ Weir # 2		X	X		X							X
9	COCO3	Cocohatchee Canal @ Weir # 3		X	X	X	X							X
10	COCOH.E	East Br. Cocohatchee @ CR 846	X						X					
11	NNDC	Pine Ridge Canal @ CR 846	X											
12	COCOH.W	West Br. Cocohatchee @ CR 846	X											
13	COCOH.PR	Palm River @ Palm River Blvd.	X											
14	COLGOV	Collier County Courthouse				X								X
15	COLSEM	Collier / Seminole State Park				X								X
16	COLLIER	Collier County Landfill				X								
17	COPELAND	Copeland Forestry Tower				X								
18	CORK	Corkscrew Swamp Sanctuary	X			X								
19	CORK.HQ	Corkscrew Swamp Sanctuary H Q				X								
20	CORK2	Corkscrew Canal @ Cork # 2	X											X
21	CORK3	Corkscrew Canal @ Cork # 3	X											X
22	CR951S	CR951-1		X	X									X
23	EXT951	CR 951 Extension	X			X								X
24	GOLD.4WA	Cypress Canal @ Weir 4A-1		X										
25	TOWER	Eagle Creek @ Barefoot Williams Road		X										
26	FAKI75	Faka Union Canal @ I-75	X											X
27	FKSTRN	Fakahatchee Strand North				X								X
28	FAKAHATC	Fakahatchee Strand HQ				X				X				
29	DANHP	Fakahatchee Strand @ Dan House				X								

			Stage	Head Water	Tail Water	Rainfall	Gates	Wells	Water Quality	Evaporation	Temprature	Wind Speed	Supervisory Control	Telemetry
30	FU1	Faka Union Weir # 1		X	X									X
31	FU4	Faka Union Weir # 4		X	X		X							X
32	FU5	Faka Union Weir # 5		X	X		X							X
33	GG1	GG Weir # 1		X	X	X			X					X
34	GOL846	Corkscrew Canal @ Cork # 1	X						X					X
35	GOL951	GG @ CR 951	X						X					X
36	GOLDF2	Golden Gate Fire Sta. # 2				X								X
37	GOLDW1	GG Weir # 1 (@ CR 31)	X						X					X
38	GOLDW2	GG Weir # 2		X										X
39	GOLDW3	GG Weir # 3		X	X	X								X
40	GOLDW4	GG Weir # 4		X										X
41	GOLDW5	GG Weir # 5		X										X
42	GORDON	Gordon River		X	X									
43	HALDEM	Haldeman Creek		X	X									X
44	HC1	Henderson Creek Weir # 1		X	X		X		X					X
45	HEND84	Henderson Creek near SR 84	X											X
46	TAMIHEND	Henderson Creek East		X										
47		IFAS @ Immokalee				X								
48	I75MZ	I75MZ						X						X
49	I75W1	I-75 Weir # 1		X	X									X
50	D2-8-H	I-75 Weir # 2		X										
51	IMMOLF	Immokalee Landfill				X								
52	KEA846	Camp Keais Strand @ CR 846	X											
53	KEA858	Camp Keais Strand @ CR 858	X						X					X
54		Lake Trafford	X											
55	LELYUS41	Lely Canal @ US 41	X											
56	LUCKE	Lucky Lake East						X						X
57	LUCKLW	Lucky Lake Weir		X	X									X
58	LUCKW	Lucky Lake West						X						X

			Stage	Head Water	Tail Water	Rainfall	Gates	Wells	Water Quality	Evaporation	Temprature	Wind Speed	Supervisory Control	Telemetry
59	MARCO	Marco Island Water Plant				X								X
60		Miles City Forestry Tower				X								
61	MLRI75	Miller Canal @ I-75	X						X					X
62	MRTI75	Merritt Canal @ I-75	X						X					X
63	NAP31	CR 31 South		X	X									X
64	NAPCON	The Conservancy				X								X
65	OKAL29	Okaloacoochee Slough @ SR 29	X						X					
66	OKAL858	Okaloacoochee Slough @ SR 858	X						X					
67	ROOK	Rookery Bay HQ				X								X
68	SGGEWX	SGGE Weather Station				X				X	X	X		X
69	SGT1W1	SGT1W1						X						X
70	SGT1W2	SGT1W2						X						70
71	SGT1W4	SGT1W4						X						71
72	SGT1W5	SGT1W5						X	X					72
73	SGT2W1	SGT2W1						X						73
74	SGT2W2	SGT2W2						X						74
75	SGT2W3	SGT2W3						X						75
76	SGT2W4	SGT2W4						X	X					76
77	SGT2W5	SGT2W5						X	X					77
78	SGT2W6	SGT2W6						X	X					78
79	SGT3W1	SGT3W1						X	X					79
80	SGT3W2	SGT3W2						X	X					X
81	SGT3W3	SGT3W3						X						X
82	SGT3W4	SGT3W4						X						X
83	SGT3W5	SGT3W5						X						X
84	SGT3W6	SGT3W6						X						X
85	SGT3W7	SGT3W7						X						X
86	SGT4W1	SGT4W1						X	X					X
87	SGT4W2	SGT4W2						X	X					X

			Stage	Head Water	Tail Water	Rainfall	Gates	Wells	Water Quality	Evaporation	Temprature	Wind Speed	Supervisory Control	Telemetry
88	SGT4W3	SGT4W3						X						X
89	SGT4W4	SGT4W4						X						X
90	SGT4W5	SGT4W5						X						X
91	SGT4W6	SGT4W6						X	X					X
92	SGT5W1	SGT5W1						X	X					
93	SGT5W2	SGT5W2						X	X					
94	SGT5W3	SGT5W3						X	X					
95	SILVER	Silver Strand Grove				X				X	X	X		X
96	BARW3	SR29-3		X										
97	BARW4	SR29-4		X										X
98	BARW6A	SR29-6A		X										X
99	TAMIATOM	Tamiami Canal @ Tomato Rd.	X											
100	TMBR37	Tamiami Canal @ Bridge 37	X											X
101	TMBR40	Tamiami Canal @ Bridge 40	X											X
102	TMBR45	Tamiami Canal @ Bridge 45	X											X
103	TMBR52	Tamiami Canal @ Bridge 52	X						X					X
104	TMBR55	Tamiami Canal @ Bridge 55	X						X					X
105	TMBR66	Tamiami Canal @ Bridge 66	X											X
106	TMBR71	Tamiami Canal @ Bridge 71	X											X

Proposed Hydrologic Monitoring Program

The ever-increasing demand on the regional water resources has culminated in continuing modifications and improvements to the BCB primary canal and water control system. In addition the recent implementation of Critical Ecosystem Restoration Projects and the Comprehensive Everglades Restoration Plan (CERP) for Hydrologic Restoration of Picayune Strand, Tamiami Trail Flow Enhancement, and Lake Trafford Restoration has necessitated the expansion and improvement of the hydrologic monitoring and operation network. The expanded network's primary obligation will be to monitor and provide data as required for optimal operation of the primary drainage system to meet the goals set forth in our mission statement. The secondary obligation will be to monitor and provide data as required for compliance with primary drainage system operational permits and the monitoring plans for the local CERP projects. The collected and archived data from the monitoring network will also enhance the continuing development of future local and regional plans for water use and supply, flood routing, and environmental assessment.

In an effort to control increasing costs from the expansion and improvements to the monitoring network to meet the necessary obligations for monitoring, regular assessments of the monitoring network need to be performed to ensure receipt of the greatest benefit from individual monitoring sites and stations as well as the entire monitoring network. Additionally, partnerships with other entities to monitor additional parameters at existing monitoring stations are being investigated as a means to further reduce monitoring redundancy and costs.

The proposed implementation plan for the Big Cypress Basin telemetric hydrologic monitoring and operation network project for existing and proposed sites and improvements are categorized under the following headings:

a. Telemetry Infrastructure

Monitoring stations will continue to be placed on the existing DMS/LoggerNet telemetry system over the next five years. The MOSCAD (Telvent) telemetry system for monitoring, operation, and control of Basin Water Control Structures and Pump Stations associated with the Picayune Strand Restoration Project will also be expanded into the Basin. The items listed Table 3 will be necessary to meet the required monitoring obligations.

Table 3 - Proposed Monitoring Program Enhancement 2006 - 2010

Project	Fiscal Year				
	06	07	08	09	10
Upgrade dedicated DMS/LoggerNet server compatible with rack server system to replace existing DMS/LoggerNet server	X				
Upgrade existing DMS/LoggerNet software and licenses		X			
Install Telvent – server, HW/SW and operators station		X			
Install dedicated telemetry communication at new field station			X		
Migrate telemetry servers and operator station to new BCB Administration Building and Field Station			X		
Install dedicated microwave telemetry communication tower				X	
Upgrade existing telemetry servers and operational HW/SW for compatibility with extended microwave telemetry communication network					X

b. Meteorological Data Stations Modernization

The network of proposed additional meteorological stations with telemetric operation update is proposed according to the schedule outlined in Table 4.

Table 4 – Meteorological Stations Telemetry Update 2006-2010

Project Sites	Fiscal Year				
	06	07	08	09	10
Reinstall / relocate weather station SILVER		X			
* Fakahatchee Strand South (Dan House Prairie)		X			
Note: * Indicates CERP/Critical Restoration Projects					

c. Surface Water Hydrologic Data Stations

The network of surface water hydrologic monitoring is to be expanded or placed on telemetry is proposed according to the schedule outlined in Table 5. Several of these stations are associated with the required monitoring network for the Hydrologic Restoration of Picayune Strand State Forest, Tamiami Trail Flow Enhancement, and Lake Trafford Critical Restoration Projects or are a requirement of operational permit conditions for improvements to the Primary Drainage System.

Table 5 – Surface Water Monitoring Expansion 2006 - 2010

Project Sites	Fiscal Year				
	06	07	08	09	10
* Golden Gate Weir # 6		X			
* Cypress Canal Weir 4A-1		X			
Okaloacoochee Slough at CR 858		X			
Okaloacoochee Slough at SR 29		X			
* I-75 Weir #2 (D2-8)		X			
Gordon River			X		
Eagle Creek at Bare Foot Williams Road					X
* Camp Keais at CR 846			X		
* 2 Paired Sites along I-75 from Toll Plaza to Miller Canal			X		
SR 29 Canal @ Sunniland Weir				X	
SR 29 Canal @ Owl Hammock				X	
Note: * Indicates CERP / Critical Restoration Projects					

d. Ground Water Hydro geologic Data

As part of the monitoring requirements for CERP Projects and Operational Permit conditions the Basin's Capital Improvement Projects, approximately 15 aquifer monitoring wells must be drilled over the next five years. Table 6 will provide data for restoration projects and the effects of improvements to the Primary Drainage System.

Table 6 – Groundwater Monitoring Wells 2006 - 2010

Project Sites	Fiscal Year				
	06	07	08	09	10
3 well transect for Faka Union Weir # 4 (replacement weir) in NGGE	X				
3 well transect south of US 41	X				
4 surficial aquifer wells along US 41		X			
3 surficial aquifer wells in the Belle Meade restoration area			X		
Rattlesnake Hammock @ CR 951				X	
Cocohatchee Canal @ CR 951				X	
Note: * Indicates CERP / Critical Restoration Projects					

e. Water Control Structure Data

Monitoring of water control structure operational data with electronic and supervisory control ability is necessary to improve the current operational systems of the existing structures and the proposed structures outlined in Table 7. Electronic control, monitoring, and supervisory control are to be included as part of the design of new and replacement structures being planned under the Basin's Capital Improvement Projects. Supervisory control is included as part of the software package for electronic control of the structures and is not intended as the primary control.

Table 7 – Supervisory Control of Water Control Structures 2006 - 2010

Project Sites Note:	Fiscal Year				
	06	07	08	09	10
Cocohatchee Canal Weir # 1		X			
Cocohatchee Canal Weir # 2		X			
Cocohatchee Canal Weir # 3		X			
Golden Gate Weir # 1		X			
Faka Union Canal Weir # 4		X			
Airport Road South Retrofit		X			
* SGGE Restoration Proj. Pump Stations			X		
Golden Gate Canal Weirs # 6 & # 7			X		
Golden Gate Canal Weir # 5				X	
Barron River Water Control Structures					X
Note: * Indicates CERP / Critical Restoration Projects					

2b. Water Quality Monitoring

Existing Program

The Basin presently sponsors three surface water quality monitoring projects under contract with the Collier County Pollution Control Department (CCPCD), the Rookery Bay National Estuarine Research Reserve (RBNERR,) and the Florida International University (FIU). CCPCD collects water samples monthly at 43 locations in the freshwater canal system; RBNERR collects water quality in the Faka Union Bay; and, FIU collects water quality data at 35 sites in the estuaries. Other water quality data have been collected as part of various studies conducted by other agencies in the region. The Basin participates in the Southwest Florida Water Quality Consortium, whose goal is to improve resource management decisions by creating a shared water quality monitoring database.

Proposed Program

a. Area Wide Water Quality Monitoring

An overall assessment of the water quality characteristics of the waterways and the

Estuaries will be conducted to assess a baseline for evaluating the effectiveness of current and future water management plans for improving the water resources of the Basin. It is recommended that the existing cooperative agreements with CCPCD, RBNERR, and FIU be continued in each year of the next five year planning cycle.

b. Project Specific Water Quality Monitoring

Additional water quality sample collection and analysis is recommended as part of the Picayune Strand Restoration (PSRP) and Tamiami Trail Flow Enhancement Projects to conform to the Restoration Coordination and Verification (RECOVER) process. RECOVER was developed to ensure that the restoration project meets the project objectives defined in the CERP project management plan. As part of RECOVER, five additional stations are recommended for the PSRP and additional stations are recommended for the upstream locations of Blackwater River, Faka Union, Fakahatchee, and Pumpkin Bays. The data from these sites will document the success of the PSRP project and changes in estuarine water quality the neighboring bays are receiving.

As part of the FDEP permit for the Lake Trafford Restoration Project, the Basin is required to develop a watershed management plan. Three additional water quality grab sample sites will be added to the Collier County surface water quality monitoring program to evaluate the long-term effectiveness of the watershed management plan.

Under the Naples Bay Restoration Project an additional accelerated water quality monitoring program is being initiated in cooperation with the City of Naples. The Naples Bay Surface Water Improvement and Management (SWIM) Plan reconnaissance study recommends implementation of a comprehensive monitoring program as a fundamental requirement for development of the SWIM Plan for the Bay.

Watershed Management Planning

In accordance with the provisions of Part V, Section 17-40.501, Florida Administrative Code, the District Water Management Plan requires an assessment of the water needs and sources for the next 20 years. To provide specific input to the District's overall water management plan and the Lower West Coast Water Supply Plan, the Basin has been involved in continual development and updating of regional watershed management plans. These plans provide a road map for formulating the Basin's capital projects, and operation and maintenance guidelines.

Big Cypress Basin Watershed Management Plan (BCBWMP)

With the evolution of urban and agricultural development the traditional surfacewater flow patterns in the western Collier County region have undergone drastic changes. Historic flowways have been virtually eliminated, and drainage canals, in many cases, have resulted in haphazard transfer of runoff from one basin to another with too much water in one area and too little in another. Many of the recent water management problems related to flooding, water supply, and environmental degradation are a result of such 'ditch and drain' strategies. Some of the impacts may be minimized or reversed by restoring and reassembling the historic surfacewater flow characteristics of the region.

The Basin Board has been conducting a comprehensive evaluation of the surfacewater flow characteristics of the western Collier County region as a singular watershed system, and to develop a set of regional routing models as a tool for evaluating alternatives for improved water management strategies. The primary goal of the project is to develop effective management of water and related land resources of the region to achieve the following objectives:

- restore historic surfacewater flow characteristics
- maintain or improve existing levels of flood protection in the developed and developing areas
- improve water retention and aquifer recharge potential
- support the long-term viability of potable and agricultural water supplies
- reduce threats of saltwater intrusion
- reduce excessive freshwater discharge impacts on downstream estuaries
- enhance natural system functions and values on publicly owned lands
- establish outflow control elevations for water management facilities throughout the Big Cypress Basin Watershed.

The first two phases of this project consisting of the development of a hydrologic-hydraulic model and ecologic assessment methodology, have been completed. An assessment of the hydrologic-hydraulic capacities of BCB facilities has been performed and conceptual alternatives have been evaluated. A preliminary flood control plan has been formulated following comparative evaluation of alternatives. Continued efforts in the BCBWMP will involve the application of an integrated surface and groundwater model presently being utilized as a comprehensive modeling tool to evaluate the entire realm of watershed processes.

This regional watershed management model is being applied to develop several basin-scale plans for formulation of preliminary engineering design of the capital projects outlined in this five year plan. The following projects will comprise the thrust of Watershed Management planning activities during the 2006 – 2010 planning cycle.

Picayune Strand Restoration Plan

The Picayune Strand encompasses an approximately 94-square mile area in western Collier County, south of I-75, between the Fakahatchee Strand and the Belle Meade watershed. It is an important surface storage and aquifer recharge area, and serves as the headwaters of the central portion of the Ten Thousand Islands estuary. Construction of road and drainage improvements in the 1960s and 1970s have overdrained the area, allowing invasion of upland vegetation, increased wildfires, reduced aquifer storage, and increased freshwater shock loads to the estuary.

The area was identified in 1985 as a component of the Governor of Florida's Save-Our Everglades program and later incorporated as a priority restoration project under the Comprehensive Everglades Restoration Project (CERP). Through an aggressive land acquisition project implemented under the State's Conservation and Recreational Land (CARL) program, and with additional funding obtained from the Federal Farm Bill grant through the U.S. Department of Interior, the entire Picayune Strand project area was acquired for public ownership. A Project Implementation Report was developed and released by the Chief of Engineers of the Army Corps of Engineers for congressional authorization. The project has now been included as an accelerated project for construction under the State's Acceler8 initiative. The future planning work for this project will involve incorporating the updated hydrologic and ecologic analysis models to detail the project design features.

Lake Trafford Basin Management Plan

Located near Immokalee in northern Collier County, Lake Trafford is a 1,600-acre lake, and the only natural lake south of Lake Okeechobee. It forms the headwaters of the Corkscrew Regional Ecosystem Watershed (CREW) to the west and the Florida

Panther National Wildlife Refuge to the south, serving as a valuable regional eco-tourism resource.

The Lake has reached eutrophic status with recurring fish kills. Restoration of the Lake was approved as a Critical Restoration Project under the Water Resources Development Act of 1996 (WRDA 96). However, no federal funding was available from WRDA 96 funds.

The BCB spearheaded an aggressive implementation plan to undertake the dredging operation of the Lake with additional financial support from the Collier Tourist Development Council and the Florida Fish and Wildlife Conservation Commission. Dredging started in November 2005. Pursuant to the demucking of the Lake, a watershed protection plan is to be initiated to formulate Best Management Practice (BMP), and other nutrient and sediment control measures in the Lake Trafford Basin. The Plan will be developed under a cooperative funding agreement with the Florida Gulf Coast University, beginning in 2006.

Retrofit Golden Gate Canal Weir #2

The Golden Gate Canal Weir # 2, located near 64th Avenue SW in Naples, provides important water control functions for maintaining storage during the dry season. The present configuration of the (with a fixed crest weir and two (2) side opening gates) is inadequate to provide the water management objectives of flood protection and groundwater recharge. Due to the strategic importance of achieving more efficient drawdown during flood event and increased conservation storage during the dry season, the structure is to be retrofitted with a fully gated spillway at a higher dry season control elevation. Hydrologic-hydraulic assessment for reconstruction of the structure and

structural design has been completed. The construction of the structure is to be started in mid 2006.

Golden Gate Canal/Henderson Creek Diversion Plan, including relocation of the Golden Gate Weir #3

The historic flowways of the Henderson Creek have been disrupted by nearly 50 years of road and drainage development. Some of these flows have been intercepted by the Golden Gate Canal and others have been disrupted, leading to flooding in low lying areas encroached by development and adverse environmental impact to the estuaries of Naples Bay and Rookery Bay.

One of the key objectives of the BCBWMP is to restore this important flowway to reduce flooding and minimize adverse impacts to the estuaries. Accordingly, the BCBWMP has considered one water management strategy to divert a portion of the peak flows from the Golden Gate Canal to the Henderson Creek Canal. The implementation of this plan will involve relocation of the existing Golden Gate Canal to a location where the GoldenGate Main Canal begins the final western turn, approximately one mile east of CR 951, and will include construction of a pump station and a diversion channel that will convey flow along a series of water management lakes in the Century Park Industrial development and a culvert under I-75, flowing south to the Henderson Creek Canal.

The project will enhance the recharge of the Marco Island Water Supply lakes and longer duration of distributed flows to the Rookery Bay estuary. Detailed hydrologic and hydraulic (H & H) assessment is being completed in 2006.

Camp Keais Strand Flowway Restoration

The Camp Keais Strand is a large natural slough conveying water from south of Lake Trafford to the Florida Panther National Wildlife Refuge and downstream ecosystem of Picayune Strand State and Fakahatchee Strand. Encroachment on the flowway by agricultural developments and road construction have adversely impacted its historic flow pattern. In addition to adversely impacting the ecosystem by such disruption of flow, the flood conveyance capacity of the flowway has also been drastically reduced. Recurrent flooding in parts of south Lee and northern Collier County can partially be attributed to disruption of this flowway. Restoration of this flowway has been considered an important element of the BCBWMP and the South Lee County Watershed Management Plan. Detailed topographic survey for the project area was procured in 2001, and a comprehensive flowway restoration plan is being developed in 2006.

Hydrologic Systems Modeling Enhancement

The BCB planning unit has been involved in application of surface and groundwater hydrologic-hydraulic models for several Basin planning efforts, watershed management plan development, and hydraulic assessment of capital improvement projects. The inadequacy of traditional H&H modeling programs to simulate the low terrain topographic features of BCB with high groundwater table, and canal flows with branching and different types of water control structures have required the Basin staff to explore applications ranging from one-dimensional steady-state flow simulations to unsteady-state continuous process two and three dimensional flow phenomena analysis. A comprehensive modeling package known as MIKE11/MIKE SHE developed by the Danish Hydraulic Institute (DHI) for integrated simulation of surface and groundwater

flows, sediment transport, and water quality has now been applied to develop water management plans for the regional BCB watershed.

This set of models has also been applied to develop the ecosystem restoration plan and design of the Picayune Strand Project. It is recommended that the Basin continue to enhance the integrated surface/groundwater modeling with GIS interface to facilitate comprehensive evaluation of watershed management alternatives.

Estuarine Hydrodynamics and Water Quality Evaluation and Planning

The bays and estuaries along the coast are the receiving waters from the Big Cypress Basin's primary canal system. To understand the impact of the current management practices and future alternatives, it is necessary to simulate the hydrodynamics of the system and relate the water management practices to the water quality and biological characteristics of the estuaries.

The first project in this endeavor will involve development of a hydrodynamic and water quality model for the Naples Bay estuary. A comprehensive review of the available data and construction of a simple model for the estuary was performed in 2005. These efforts also included collection of bathymetric data for the Bay. A comprehensive model will be developed to track the impact of changes in freshwater and nutrient loads on the estuary. The model will be compatible with the water quality monitoring and biological studies currently being conducted in the estuarine system. Hydrologic and water quality performance measures will be developed to evaluate the effectiveness of water resource management. This modeling project may be used to develop a watershed management plan to meet the Total Maximum Daily Load (TMDL) requirements.

Aerial Photogrammetric Survey for Topographic Map Development

The traditional topographic maps at five-foot contours available from USGS are not adequate in providing detailed topographic elevation data for low gradient terrains of Southwest Florida. Topographic data at one-foot or less contour interval is necessary for sound water management planning.

Since 1983 the Basin has been involved in collecting topographic data through aerial photogrammetric surveying. For several years, the project has been cooperatively funded with Collier County Stormwater Management Department. Presently, topographic maps at one-foot contour developed through aerial photogrammetric surveying are available for the following areas:

1. Belle Meade Royal Palm Hammock Basin
2. District 6
3. District 7 Phase I
4. District 7 Phase II
5. CR 951 Canal corridor
6. Golden Gate - Western Belle Meade area
7. Camp Keais Strand flowway
8. Immokalee Area

These products have also been extensively used by the public agencies and private enterprises for numerous water management planning projects. Collection of topographic information by aerial photogrammetric survey is planned for the following areas during FY 2006 - 2010. An index map showing the locations of existing and proposed topographic survey areas are illustrated in Appendix A.

FY 2006 Northern Golden Gate Estates Phase I

FY 2007	SR 29 Canal North Basin
FY 2008	Northern Golden Gate Estates Phase II
FY 2009	Corkscrew - Cocohatchee Canal North Basin
FY 2010	Northern Lake Trafford Basin

3. Capital Improvement Construction Program

Existing Program

Chapter 373.0695(2)(c) Florida Statutes specifies that Basin funds may be utilized for "payment of costs of construction of Works of the Basin executed by the District." Since 1981. the Basin has been implementing a responsible construction program to facilitate and enhance water resources management within the region. Most of the construction program activities prior to 1985. were limited to upgrading the maintenance of the water control structures. Beginning in 1985 a comprehensive construction program was undertaken to retrofit the water control structures in the Golden Gate Canal System to reduce continual overdrainage and enhance flood control capabilities. Subsequently, the premise of the capital construction program was extended to other problem areas in the Basin. The major construction works completed under the capital improvement program are illustrated in Table 8.

Proposed Capital Improvement Program

The program schedule for the capital improvement construction projects outlined in the previous five year plans has been amended in this update. Scopes of some of the projects were expanded and moved up on the schedule to meet the changing needs. Budgetary limitations, and diversion of funds to meet the shortfall of expected federal funds for the Lake Trafford, Tamiami Trail, and PSRP projects also resulted in reprioritizing several projects. Accordingly, the following schedule of construction programs is outlined for the FY 2006-2010 period. The program schedule is summarized in Table 9 and illustrated in Figure 2

.

Table 8

Major Capital Improvement Projects: 1981-2001

YEAR	WORK	COST
1981	Faka Union Canal Weir - plug sheet pile joints, plug V-notches, remove flash board retaining channels, replace rip-rap	$141,125
1981	Gordon River Amil Gates – sandblasting and painting	10,898
1983	North Naples Drainage Canal Downstream Amil Gates – general overhaul, sandblasting, and painting	80,391
1983	Golden Gate Canal - channel modification	60,043
1983	Golden Gate Canal Main Weir – install gate gasket, install synchronized hydraulic pump system, install mid-channel reinforcing davit and jack	34,000
1984	North Naples Drainage Canal Upstream Amil Gates – general overhaul, sandblasting, and painting	43,000
1985	Haldeman Creek Amil Gate – sandblasting, painting and general overhaul (accomplished by U.S. Home Corporation)	37,000
1985	Golden Gate Canal Structure No. 2 - major structural modifications and reinforcing	196,260
1986	Golden Gate Canal Structure No. 3 - major structural modifications and reinforcing	305,283
1987	Golden Gate Canal Structure No. 4 - reconstruction with enhanced structural configuration	266,250
1987	Backpumping CR 31 South – installation of backpumping system	74,000
1988	Golden Gate Canal Structure No. 5 - reconstruction with enhanced structural configuration	302,000
1988	CR 31 North Structure – cooperative funding with Collier County	75,000
1989	4A-1 Structure - reconstruction with enhanced structural configuration at a different site	272,000
1991	D1-7A Weir - reconstruction with improved structural features and flood control gate	107,000
1991	D2-7 Weir - reconstruction at a downstream site with enhanced structural features, flood control gates, and backpumping facility	518,000
1993	Golden Gate Canal Structures No. 3 and No. 4 - raising of weir crests	46,538
1994	Cocohatchee Canal Structure No. 1 and Channel Improvements - salinity barrier and spillway (operations began in July 1994)	900,000
1994	Palm River Weir - reconstruction	134,481
1995	Cypress Canal Weir No. 4A-1 – modifications	36,786
1995	D2-8 Backpumping Facility	61,820
1996	Cocohatchee Canal Structure No. 2 - fixed weir, gated spillways and channel modification (operations began in August 1996)	913,945

Table 8 (continued)

YEAR	WORK	COST
1997	Cocohatchee Canal - replacement on Bay West, Rose Boulevard and Nursery Lane	537,000
1998	Cocohatchee Phase II Bridge – replacement (Lakeland Avenue)	150,000
1999	Cocohatchee Canal Phase III A - improvements	1,371,000
1999	Cocohatchee Canal Phase III B – improvements	1,017,000
1999	Cocohatchee Canal Weir No. 3	798,000
1999	Lucky Lake Water Control Structure	260,000
1999	Cocohatchee Phase III A Bridges	1,462,000
1999	Lake Trafford Restoration - Land Acquisition	1,300,000
2000	Cocohatchee Canal – North Bank Revetment	386,000
2001	Cocohatchee Canal – Phase 4 Improvement	100,000
2002	Faka Union #5	748,250
2003	Golden Gate #1	2,240,000
2004	CR 951 Canal Improvements	2,802,000
2004	CR 951 Weir #1	661,880
2005	Faka Union #4	2,214,000
2006	Corkscrew Canal Improvements Phase I	1,830,000
2006	Corkscrew Canal Improvements Phase II	1,320,000

Golden Gate Canal/Henderson Creek Diversion Project

The BCBWMP has recommended implementation of a diversion canal to connect Golden Gate Main Canal and Henderson Creek across I-75. The objective of this project is to divert a portion of the Golden Gate Canal flows to restore the historic flowways of the Henderson Creek Basin and to reduce flooding along the urbanized areas of Golden Gate Main Canal. It will additionally reduce voluminous freshwater shock load to the Naples Bay estuary. The project will involve relocation of the existing Golden Gate Canal Weir #3 downstream to a location near the Collier County South Water Treatment Plant, as well as the construction of a pump station and diversion canal. The Basin Staff is coordinating with a land developer to implement the diversion through a series of lakes for eventual connection to the upper reaches of Henderson Creek. The construction and land acquisition cost of the project is estimated at $2,500,000 and scheduled for implementation in 2007.

Relocation of BCB Office and Field Station Building

The present location of the BCB office and field station in the Pine Ridge industrial park is inadequate to provide efficient service. The ingress to and egress from the field station have become increasingly difficult due to traffic congestion by a two lane road. Since over 80 percent of the Basin's canals and water control structures are located east of CR 951, many of man-hours are lost in commute by employees and equipment to the job sites. In addition, the present site is in a flood prone area and the facilities are not structurally sound to withstand category 3 hurricane force wind. A site for relocation of the office and field station building has been selected and the land acquisition process in underway. Construction is planned in FY07 and FY08.

Golden Gate Canal Weir #2

The drainage area of the Golden Gate Main Canal is undergoing a rapid urban development boom. The increase in impervious areas due to urbanization has resulted in quick response of storm runoff and flash flooding in many parts of the Basin. Hydraulic evaluation of the canal performed as a part of BCBWMP recommended upgrading of the Golden Gate Canal Weir #2 with enhanced flood conveyance and conservation storage capacities. A new gated spillway structure with Obermeyer gates is being designed. Construction is scheduled to start in late FY06.

Ecosystem Restoration Projects

The Basin is presently in the process of implementing three capital improvement restoration projects, in cooperation with the state and federal agencies, to restore the historic flowways and the ecologic values of the region:

- Picayune Strand Hydrologic Restoration Project (PSRP)
- Tamiami Trail Flow Enhancement Project
- Lake Trafford Restoration Project

The first phase of the Tamiami Trail Flow Enhancement is complete. The PSRP is an element of the Comprehensive Everglades Restoration Program (CERP), and being implemented as a priority project under the State's Acceler8 program. The dredging of Lake Trafford has been undertaken as a Critical Ecosystem Restoration Project. The Basin is the primary sponsor of the Lake Trafford project, with partial cooperative funding received from the Florida Fish and Wildlife Conservation Commission and the Collier County Tourist Development Council. Due to the multi-year implementation schedule of the PSRP and the Lake Trafford project, the Basin will be required to fund

the majority of the construction costs of these projects. The optimum cost of each segment of the projects will need to be budgeted in each budget year of this five year plan cycle.

Table 9

BCB Five Year Capital Improvement Program
FY 2006 - 2010

Fiscal Year	Project	Estimated Cost	Status As of April 2006
2006	Golden Gate Canal Weir # 3	$ 2,500,000	Modeling
	BCB Office and Field Station Relocation	$ 2,000,000	Land Acquisition
	Lake Trafford Restoration	$ 3,000,000	Construction
	Golden Gate Weir #2 Retrofit	$ 1,500,000	Permitting
	Picayune Strand Restoration Project	$ *	Basis of Design Report (BODR)
2007	Henderson Creek Diversion	$ 1,500,000	Permitting by Developer
	Picayune Strand Restoration Project	$ *	BODR
	Lake Trafford Restoration	$ 1,000,000	Construction
	Golden Gate Canal Weir #6 & #7 Retrofit	$ 1,700,000	Modeling
	Camp Keais Flowway Improvements	$ 1,000,000	Modeling
2008	Lake Trafford Restoration	$ 1,000,000	Construction
	Barron River Canal Structures Retrofit Phase I	$ 1,800,000	Feasibility
	Picayune Strand Restoration Project	$ *	BODR
2009	Golden Gate Canal Weir#5 Retrofit	$ 2,000,000	Feasibility
	Picayune Strand Restoration Project	$ *	BODR
	North Belle Meade Rehydration Plan	$ 1,000,000	SWM plan
2010	Golden Gate Canal ASR Phase I	$ 2,000,000	Feasibility
	Barron River Canal Structures Retrofit Phase II	$ 1,500,000	Feasibility
	Henderson Creek Spreader Channel	$ 1,500,000	Modeling

* CERP – Acceler8 Fund: Total Approximate Project Cost $360M

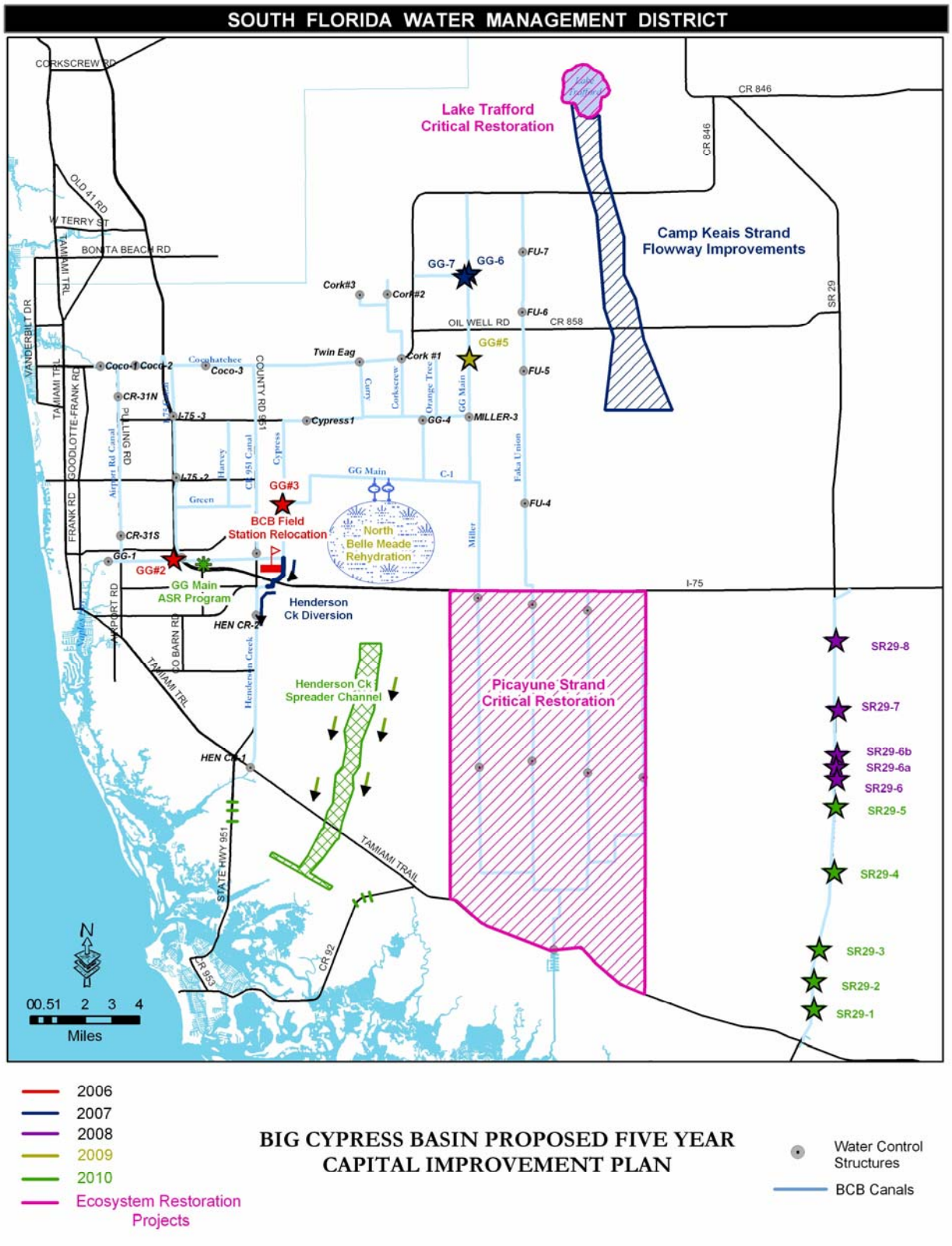


Figure 2 - Big Cypress Basin Proposed Five Year Capital Improvement Plan

4. Operations & Maintenance

The Operations and Maintenance Program consists of activities to effectively manage the present network of 169 miles of primary canals and 46 water control structures.

The Acceler8 project for the restoration of Picayune Strand State Forest will include the construction of three (3) large pump stations. The Big Cypress Basin Operations and Maintenance section will be assuming the operation and maintenance of these stations in addition to their current responsibilities. Construction is to begin in the fall of 2006 and the pumps are to be on line and working in January of 2009. The FY09 budget will require significant additional funding for maintenance, fuel costs and electricity costs associated with these new stations.

The project will also have major impacts on the way we do business today. We will be required to increase both our personnel and equipment resources incrementally over the next two (2) years to keep pace with this project coming online and to insure qualified personnel are in place when needed.

Some of our existing staff are scheduled to begin training in 2006 to become Pump Station Assistants in addition to their regular job classifications so that they will be ready when the new pumps are completed. Other staff members will be trained to become Planner/Schedulers and Contract Administrators, to assist in maintenance responsibilities.Additional staff and the resources to support these improvements will be required and are outlined in the following pages.

The Vehicles and Equipment List on Table 10 shows the additional pickup and utility trucks required and the Staffing Matrices for the next five (5) years summarizes the personnel requirements on Table 10 - 16 and Figure3.

STRATEGIC PRIORITY

Operate and maintain the primary canal system

STRATEGIES

- Operate and maintain the regional canal system under established schedules
- Maintain rights-of-way for maintenance access
- Regulate use of District rights-of-way
- Control vegetation that potentially impedes system effectiveness
- Utilize life cycle costing for equipment and facilities
- Analyze equipment and facilities condition, and make necessary repairs and replacements
- Enhance cross training and technical expertise to absorb growing workload, while keeping pace with new technology and changes to utilize existing staff effectively
- Outsource non-core competencies
- Annually update the 5 and 10 year plans and work loads
- Develop annual work plans for all field station programs

SUCCESS INDICATORS

- Acre-feet of water moved and stored
- Flood damages minimized and water supply deliveries provided
- Number of gated structure operations
- Acres of canal banks maintained: cycles completed
- Acres of vegetation treated annually
- Right-of-Way permit compliance
- District works/facilities upgraded and maintained on schedule

FUNDING SOURCES

- Ad Valorem
- Investment earnings
- Licenses, permits and fees
- Other

Vehicle & Equipment Replacements

FY2006 - FY2010

YEAR	Replace		New		Est. Cost
			Hybrid, Ford Escape		
FY2006	#1676 - 4X4, Jimmy		Compact, SUV, 4X4		$31,000
				Total	$31,000
FY2007	Additional		Unimog w/boommower		$180,000
	#0853 - Forklift, Clark		Similar		$42,000
		Chief Opr	*2 WD Pickup*		*$23,000*
				Total	$245,000
FY2008	#1848 - Posi-Track		Posi-Track, next size up		$85,000
	#1541 - Utility Trailer		Similar,Landoll		$15,000
		Ctrl Spec	*Utility Truck*		*$30,000*
		Elec	*Utility Truck*		*$30,000*
		PS-1	*2 WD Pickup*		*$23,000*
		PS-2	*2 WD Pickup*		*$23,000*
		PS-3	*2 WD Pickup*		*$23,000*
				Total	$229,000
FY2009	#1677 - 4X4 Pickup		4X4 Pickup, Ext. Cab		$28,000
	#1982 - 1.5T,4X4, Flatbed, GMC		Similar		$30,000
	#2096 - 1.5T,4X4, Flatbed, Ford		Similar		$30,000
		Supv.	*2 WD Pickup*		*$23,000*
		Supv.	*2 WD Pickup*		*$23,000*
		Shuttle	*6 Pass. Pickup*		*$30,000*
		PS's	*Bobcat, trash removal*		*$60,000*
				Total	$224,000
FY2010	#2141-3/4T,4X4 Club Cab Pickup		Same		$30,000
	#2142 - F450, 4X4, Utility Truck		Same		$42,000
	#2308 - Ford Taurus		Sedan		$20,000
				Total	$92,000

Items in red italics are required for pump station operations.

Table10 – Vehicle and Equipment Replacements

TABLE 11 **BIG CYPRESS BASIN FIELD STATION**
WORKLOAD MATRIX 2006

	CALCULATED STD FTE'S	REGIONAL SUPPORT FTE'S*	
MANAGEMENT	0.00	0.00	
ADMINISTRATIVE	0.00	0.00	
STORES	0.00	0.00	
PROFESSIONAL SUPV	0.00	0.00	
VEGETATION MANAGEMENT	6.44	4.00	(2.44)
CANAL/LEVEE MAINTENANCE	5.15	5.00	(0.15)
STRUCTURE MAINTENANCE	3.40	1.00	(2.40)
MAINT SUP FAC/MACH SHOP	0.00	0.00	0.00
SIGN SHOP	0.00	0.00	0.00
EQUIPMENT MAINTENANCE	0.91	1.00	0.09
PUMP STATIONS OPS	0.00	0.00	0.00
RIGHT OF WAY	1.33	1.00	(0.33)
TOTAL	17.23	12.00	(5.23)

TABLE 12 **BIG CYPRESS BASIN FIELD STATION**
WORKLOAD MATRIX 2007

	CALCULATED STD FTE'S	REGIONAL SUPPORT FTE'S*	
MANAGEMENT	0.00	0.00	
ADMINISTRATIVE	0.00	0.00	
STORES	0.00	0.00	
PROFESSIONAL SUPV	0.00	0.00	
VEGETATION MANAGEMENT	6.44	4.00	(2.44)
CANAL/LEVEE MAINTENANCE	5.15	5.00	(0.15)
STRUCTURE MAINTENANCE	3.40	1.00	(2.40)
MAINT SUP FAC/MACH SHOP	0.00	0.00	0.00
SIGN SHOP	0.00	0.00	0.00
EQUIPMENT MAINTENANCE	0.91	1.00	0.09
PUMP STATIONS OPS	0.00	0.00	0.00
RIGHT OF WAY	1.33	1.00	(0.33)
TOTAL	17.23	12.00	(5.23)

TABLE 13 **BIG CYPRESS BASIN FIELD STATION**
WORKLOAD MATRIX 2008

	CALCULATED STD FTE'S	REGIONAL SUPPORT FTE'S*	
MANAGEMENT	0.00	0.00	
ADMINISTRATIVE	0.00	0.00	
STORES	0.00	0.00	
PROFESSIONAL SUPV	0.00	0.00	
VEGETATION MANAGEMENT	5.81	4.00	(1.81)
CANAL/LEVEE MAINTENANCE	4.03	5.00	0.97
STRUCTURE MAINTENANCE	3.37	1.00	(2.37)
MAINT SUP FAC/MACH SHOP	0.00	0.00	0.00
SIGN SHOP	0.00	0.00	0.00
EQUIPMENT MAINTENANCE	1.03	1.00	(0.03)
PUMP STATIONS OPS	11.53	0.00	(11.53)
RIGHT OF WAY	1.33	1.00	(0.33)
TOTAL	27.10	12.00	(15.10)

TABLE 14 **BIG CYPRESS BASIN FIELD STATION**
WORKLOAD MATRIX 2009

	CALCULATED STD FTE'S	REGIONAL SUPPORT FTE'S*	
MANAGEMENT	0.00	0.00	
ADMINISTRATIVE	0.00	0.00	
STORES	0.00	0.00	
PROFESSIONAL SUPV	0.00	0.00	
VEGETATION MANAGEMENT	5.81	4.00	(1.81)
CANAL/LEVEE MAINTENANCE	4.03	5.00	0.97
STRUCTURE MAINTENANCE	3.37	1.00	(2.37)
MAINT SUP FAC/MACH SHOP	0.00	0.00	0.00
SIGN SHOP	0.00	0.00	0.00
EQUIPMENT MAINTENANCE	1.03	1.00	(0.03)
PUMP STATIONS OPS	11.53	0.00	(11.53)
RIGHT OF WAY	1.33	1.00	(0.33)
TOTAL	27.10	12.00	(15.10)

TABLE 15 **BIG CYPRESS BASIN FIELD STATION**
WORKLOAD MATRIX 2010

	CALCULATED STD FTE'S	REGIONAL SUPPORT FTE'S*	
MANAGEMENT	0.00	0.00	
ADMINISTRATIVE	0.00	0.00	
STORES	0.00	0.00	
PROFESSIONAL SUPV	0.00	0.00	
VEGETATION MANAGEMENT	5.81	4.00	(1.81)
CANAL/LEVEE MAINTENANCE	4.03	5.00	0.97
STRUCTURE MAINTENANCE	3.37	1.00	(2.37)
MAINT SUP FAC/MACH SHOP	0.00	0.00	0.00
SIGN SHOP	0.00	0.00	0.00
EQUIPMENT MAINTENANCE	1.03	1.00	(0.03)
PUMP STATIONS OPS	11.53	0.00	(11.53)
RIGHT OF WAY	1.33	1.00	(0.33)
TOTAL	27.10	12.00	(15.10)

Table 16 – FTE Projection

Positions						
	FY06	**FY07**	**FY08**	**FY09**	**FY10**	**FY11**
Admin/Manager	1	1	1	3	3	3
Structure Maintenance	1	1	3	3	3	3
Pump Station	0	0	0	11	11	11
Canal/Levee	5	5	4	4	4	4
Fleet	1	1	1	1	1	1
Vegetation Mgmt.	4	4	4	0	0	0
ROW	1	1	1	1	1	1
Contr. Inspector	0	0	1	1	1	1
Stores	0	0	0	1	1	1
Elec/Ctrl Spec	0	0	1	3	3	3
TOTAL	**13**	**13**	**16**	**28**	**28**	**28**

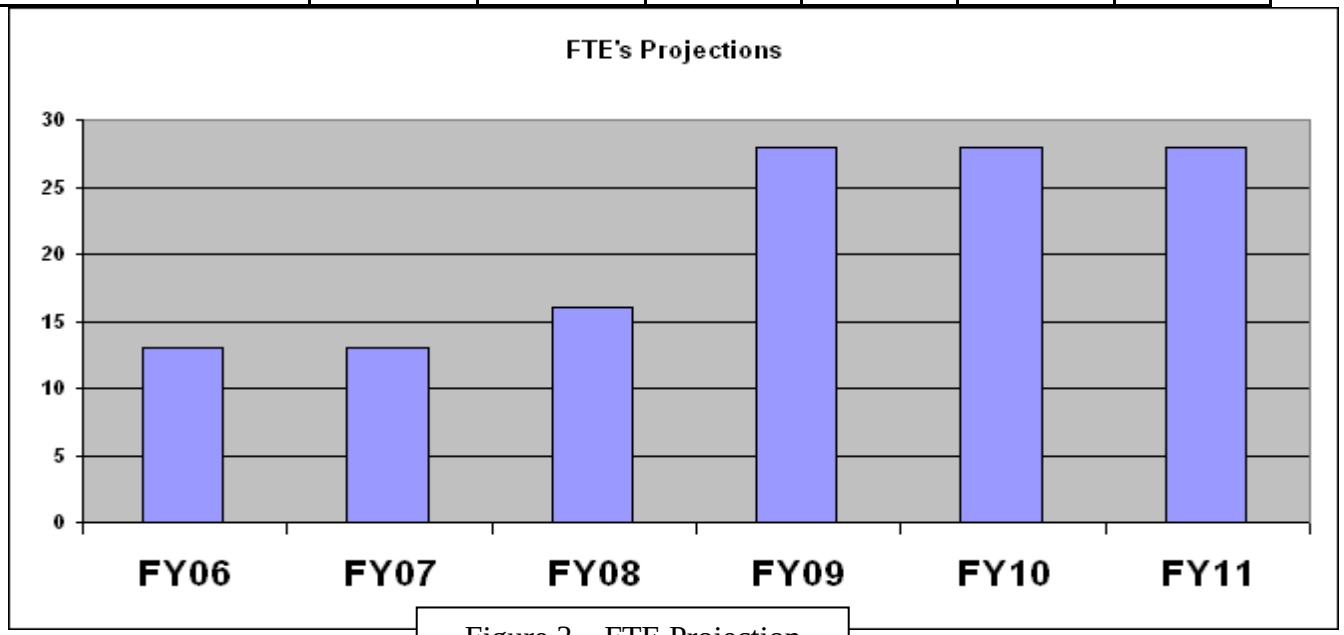


Figure 3 – FTE Projection

5. Local Government Assistance/Cooperation Projects

One of the primary responsibilities of the Basin Board is to lend support and guidance to local governments in dealing with water and environmental resource issues. The core function of this program involves providing technical and financial assistance local governments and public agencies for projects enhancing storm water management, alternative water supply, ecosystem restoration, and water conservation education. The Basin staff also regularly support the local governments with data and analysis on projects to integrate land use and regional water resource decision-making.

Cooperative funding program requests from the local governments are evaluated in each budget cycle for funding projects with a minimum fifty per cent (50%) cost share by the applicant.

Criteria for evaluating the funding eligibility of the projects are based on:

1. How the project will help achieve the Basin's mission elements of water supply, water quality, environmental enhancement, and flood control
2. Regional benefits of the project
3. How the project complies with the Basin's short- and long-range plans and programs
4. Potential benefits and risks involved if the project is not undertaken
5. Whether the project is ready to start immediately or still in planning stages

This program has been very useful in implementing many local projects and fostering productive partnerships with local governments and communities. It is recommended that this program be continued in this cycle of five-year planning efforts.

Future Projects

Future projects for the local government assistance and cooperative water resources program will be identified based on the requests from local governments and public water supply utilities. However, the Basin has been aggressively pursuing implementation of various elements of the Naples Bay Restoration and exploration of the Alternative Water Supply sources. Continued efforts will be made to make these two projects a priority with the cooperation of Collier County and the Cities of Naples, Marco Island, and Everglades City. Other continuing cooperative funding projects such as, the Urban Mobile Irrigation Lab, BCB Regional Research and Monitoring Database, and the BCB Restoration and Coordination Team support activities, will be evaluated in each annual budget cycle of this five year plan.

6. Water Conservation Education/Public Awareness Programs

The Basin has undertaken a variety of comprehensive programs to help educate the public about the water and environmental resources of the area and promote water conservation measures by every citizen. Due to the rapid growth in Collier County, concerns over the water supplies of the region mandate greater efforts to educate the public about water supplies and the need for changing water use habits. The Basin, as the local arm of the District, coordinates the programs in the Collier County (Table 17).

Programs:

The following are some of the major initiatives about water and environmental education, and public outreach activities presently carried out by the Basin.

A. Speaker's Bureau: Staff and Board Members are available for public speaking engagements including presentations on local issues to various community

groups, organizations, or agencies. The PowerPoint presentation is updated regularly to assure current information on projects.

B. **Home Page:** A detailed BCB Home Page, describing the organization and activities of the Basin, was been created as part of the District website. The site is available at http://www.sfwmd.gov/organ/2_bcb.html, providing information to the public at any time. The page is currently being updated to provide the most current information to the public. The District website address is being added to all informational handouts available to the public to increase awareness of the site.

C. **BCB Express Newsletter:** A monthly newsletter is sent to Basin Board members and local government officials, and is also available on the BCB website. The newsletter updates Basin projects, capital construction projects, items of interest about water resource issues, storm event data, and other important water resource information. During the next year, a mailing list will be created to provide the newsletter to homeowner association presidents, industry representatives, agricultural representatives, and by request.

D. **Melanie the Manatee Mascot:** Melanie the Manatee was chosen as the Basin mascot following a student art contest during the 1996-97 school year. Melanie is available, through a character costume, to visit local events and school presentations dealing with water resource efforts. Her image and water conservation tips are displayed on a number of educational items available to the public.

E. **Wetlands Tabletop Model:** A model that mimics the environmental landscape of Collier County is one of our newest educational tools. The model is used to explain the role and importance of wetlands to the environment. It also helps explain difficult surface and groundwater concepts with a visual hands-on format that can be used

for children or adult presentations. Basin staff will present the model to civic or school groups and will loan the model on request. Basin staff worked with staff from the Lower West Coast Service Center to create a training program for teachers and other environmental agencies that wish to use the model.

F. **Big Cypress Basin Video:** A video discussing the Basin history and programs is available. Copies are available at the Basin office, government access Channel 54, public libraries, and schools. Basin staff use it for presentations to local governing bodies, public agencies, and civic or school groups.

G. **Brochures:** A number of BCB and SFWMD brochures are available, including an *Operation Schedule of Water Control Structures* that includes a description of the when gates are opened and closed and at what elevations they are set. The BCB *Facts and Figures* brochure gives a brief overview and history of the Basin. The BCB brochures are updated annually or as new information becomes available.

H. **Satellite Photography:** The Basin provides satellite posters of South Florida and the Basin to all public and private schools, as well as members of the public. These excellent teaching tools are used to describe the water resources in Collier County. The poster will be updated with new satellite imagery during FY06.

I. **Adopt A Canal Program:** The Basin participates in 'Adopt a Canal Program' of the state, in conjunction with Keep Collier Beautiful in 2000. A number of neighborhood groups are active in cleaning the canal banks of trash and debris. The program should expand to cover at least four canals by 2007. The Basin will provide recognition signs for the groups on the canal being adopted.

J. **Participation in Local Events:** Basin staff actively participate in booths at local special events, fostering community outreach of its programs and activities. The

annual Collier County Fair has provided an opportunity for direct one-on-one interaction with the public. The Basin was fortunate to be one of the first environmental booths at the Collier-Seminole State Park Native American and Pioneer Heritage Festival and continues to participate in this event. The Basin also helps to coordinate and participate in local and regional water festivals and water symposiums.

K. **Melanie Award Program:** The annual Melanie the Manatee Award, was initiated in 1999 to recognize residential developments, government, private organizations, schools, or individuals whose contribution positively impact water resources. The manatee shaped plaque is based on the original drawing of Melanie from the student art contest. The program will be continued at a nominal cost.

L. **Collier Environmental Education Consortium:** Known as CEEC, the consortium is a collection of public and private agencies involved in environmental education. CEEC plays a coordinating role for public and private schools to better communicate and disseminate environmental education materials. Basin staff continue to serve on the CEEC board and provide water resource-oriented support. The Basin Board continues to provide funds for the Environmental School Awards (ESA), a CEEC sponsored program that rewards schools for environmental school programs. Schools applying for ESA must meet specific criteria, including programs on water conservation, recycling and other conservation measures, soil surveys and environmentally friendly gardens, environmental field trips and in class speakers, Earth Day celebrations, and environmentally-based community service projects. Award criteria are updated each year.

M. **Water Quality Testing Kits:** The Basin provides water quality testing kits to local schools, including middle and high schools and Edison Community College. The kits are used for testing local surfacewaters. Results are provided to the Collier

County Pollution Control Department for incorporation in their database. This program allows the students to deal directly with real-time water quality data.

N. **School Field Trips:** The Basin provides curriculum information and partial funding for Collier County Public School 6th grade class field trips to Big Cypress National Preserve. These trips discuss the local environment and wildlife habitats, as well as water resource issues and restoration projects. An 8th grade trip is also available to Lake Trafford to study the lake restoration project.

O. **School Programs:** The Basin has been a very active partner with the Collier County Public Schools in sponsoring water and environmental resources conservation education to the area public and private schools. The programs, like the *Water: Sharing the Resource,* have been very popular in disseminating awareness on south Florida's vulnerable water resources. The Basin will continue to spearhead this program by sponsoring training programs for teachers and providing curriculum materials developed by the District.

P. **Science Fair Judging:** Staff annually participates as judges at the regional science fair. Judging involves evaluating engineering and/or environmental science project entries and communicating with the students who entered the fair. Several members of staff also act as judges at individual school science fairs at both the middle and high school levels. The Basin will staff will continue to support this interesting program.

Q. **Minority Outreach:** The Basin staff actively coordinate the District's Minority Business Enterprise (MBE) and Outreach programs. Consultants hired by the District work with Basin staff and Board members to increase awareness of the District's

business of procurement and construction contracts to minority communities and small businesses. The Basin will continue to be the local coordinator of this program.

R. **Know the Flow Program:** The very successful Know the Flow program, aimed at Homeowner Associations, teaches homeowners how to keep their neighborhoods stormwater management systems free of debris and ready to convey stormwater. To reach more homeowners, the program has been incorporated into the master gardener lecture series sponsored by the Collier County Extension Service. The Basin will continue to lead this program.

S. **Melanie the Manatee Essay Contests:** A Melanie the Manatee essay contest has been very popular annual event to create water conservation awareness among the elementary and middle school children. The program has now been expanded to include the adult public for a biennial essay contests on water conservation. This program is planned to continue to foster public awareness of our sensitive water and environmental resources.

T. **Mobile Irrigation Lab**: A Mobile Irrigation Lab (MIL) specially designed to help people conserve water, while improving or maintaining the health of their yard is free of charge to evaluate irrigation system design in the urban and suburban areas of Collier County. The lab is operated by the USDA Natural Resources Conservation Service and the Collier Soil and Water Conservation District, located at the Collier County Agriculture Center with funding from the BCB/SFWMD. Upon homeowner association or individual request, the MIL will schedule an appointment for an irrigation system evaluation. The MIL performs on-site technical analysis by observing the system in operation and measuring its efficiency. The information collected is used to identify problems with the system design, operation and maintenance,

and to make recommendations for improvement. An irrigation-scheduling guide has also been developed to assist in proper system operation. The BCB plans to continue working with this positive water conservation outreach program over the next five (5) years.

U. **Wings of Hope Program**: The Wings of Hope program, including the assistance of more than 600 Florida Gulf Coast University (FGCU) students, has presented hundreds of programs to tens of thousands of students in five (5) Southwest Florida counties. Not only do the university students enjoy and benefit from the program by becoming more aware and educated about our Southwest Florida wildlife, habitats, and water conservation, but they learn how the SFWMD plays an active role in protecting our backyard. Governor Jeb Bush, a proponent of the program, requested a Florida Panther brochure be created by the *Wings of Hope* program, to be distributed from his office all over the nation and the world. More than five hundred brochures have been sent to Governor Bush's office with the SFWMD logo, making everyone that sees the brochure aware of our support for the *Wings of Hope* program. The *Wings of Hope* program is a positive and educational voice for SFWMD to thousands of students, teachers, families, and the community in Southwest Florida, and has been heard all over Florida, the United States, and the World. The BCB plans to continue working with this positive outreach program over the next five (5) years.

V. **Go With the Flow**: The objective of this program is to provide an overview of the natural resources in Collier County, relative to watershed and coastal connectivity through water resources to elected officials, local decision-makers and members of the business community. Participants receive knowledge and tools related to watershed science and policy in Collier County, with a goal to understand the significance of the economic, social, environmental, and human health aspects of Collier

County watersheds. Participants will make connections with local experts, personally experience outdoor locations of unique significance, gain understanding and tools that bridge science, policy, and people, and receive a local watershed resource guide. The BCB will continue to be involved with this program and is looking to expand it by FY08 to include two (2) sessions per year.

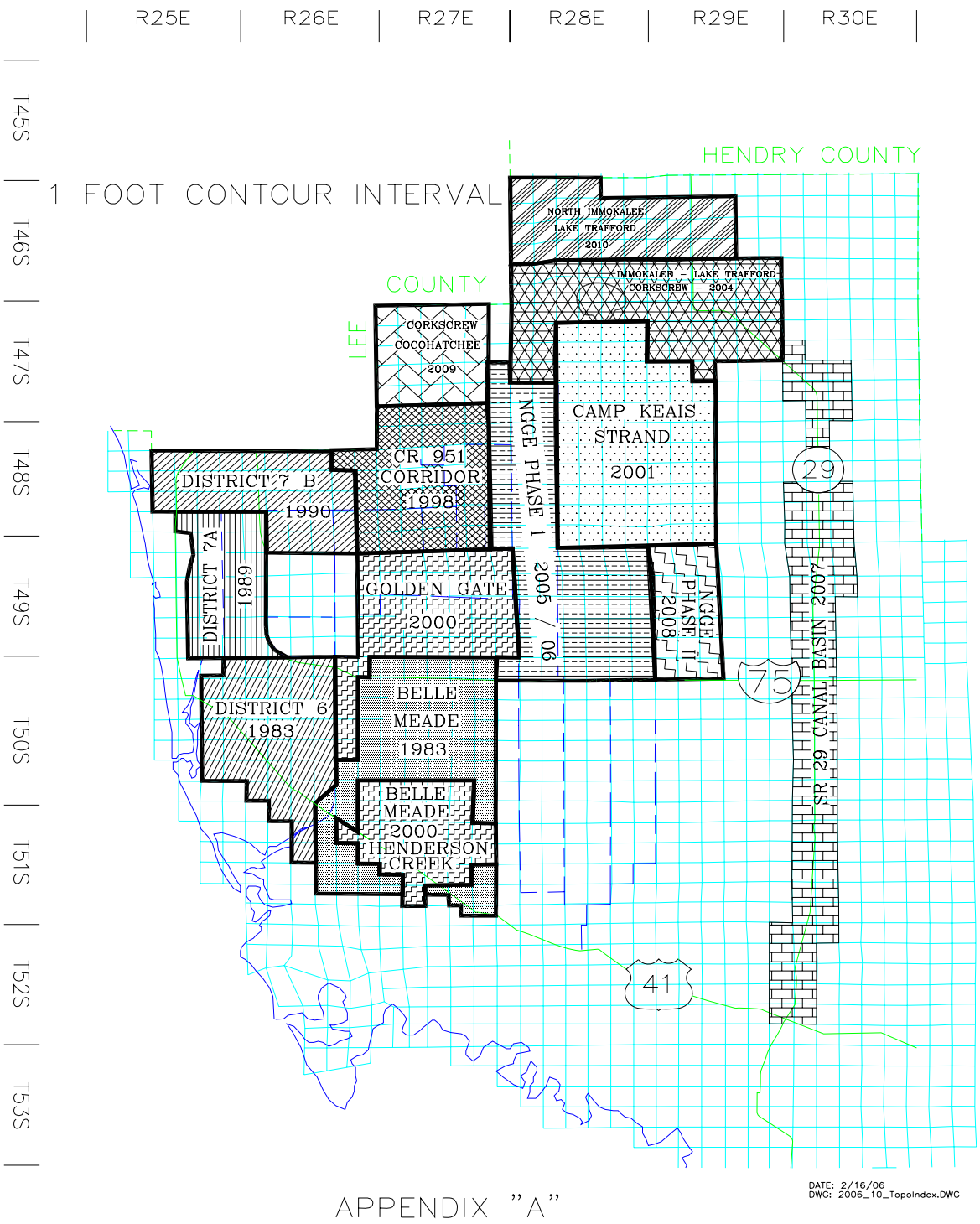
Table 17 - Public Outreach Initiatives Five Year Summary

Activity	FY06	FY07	FY08	FY09	FY10
Speaker's Bureau	Update Power Point (ongoing)	X	X	X	X
Home Page	Updated Information	X	X	X	X
BCB Express Newsletter	Develop E-listserve	X	X	X	X
Melanie Mascot character costume available	X	X	X	X	X
Wetlands Model available	X	X	X	X	X
Brochures	X	X	X	X	X
Satellite Photography for schools or public	Updated satellite image available	X	X	X	X
Participation in Local Events	X	X	X	X	X
Newspaper columns	X	X	X	X	X
CEEC	X	X	X	X	X
Water Quality Testing Kits	X	X	X	X	X
6th Grade Field Trips	X	X	X	X	X
School Programs	X	X	X	X	X
Science Fair	X	X	X	X	X

Activity	FY06	FY07	FY08	FY09	FY10
Daytime Watering Ban	Help Collier County and Naples create water conservation plans	X	X	X	X
BCB Video Available	X	X	X	X	X
Xeriscape Guides Available	X	X	X	X	X
Display	Start talks on adding a display at environmental centers				X
Minority Outreach	Work with consultants to increase outreach by 10%.	Expand outreach program	Expand outreach program	Expand outreach program	Expand outreach program
Summer Camps	Formalize agreement with Naples Summer Camp program	Increase presentations by 5%	Increase presentations by 5%	Increase presentations by 5%	Increase presentations by 5%
Adopt-A-Canal Program	Criteria for adoption written	First canal adopted by 2 groups	Increase to 4 groups	Increase to 6 groups	Increase to 8 groups
Melanie Award	X	X	X	X	X
Know the Flow	X	X	X	X	X
Informational Poster	Full color poster available to the public	X	X	Poster updates on restoration projects	X
Restoration Projects	Public display available	X	Update display	X	Update display
Public Contests		Contest held		Contest held	
Mobile Irrigation Lab	X	X	X	X	X
Wings of Hope	X	X	X	X	X
Go With the Flow	X	X	Increase to twice a year	X	X

Appendix A

BCB/COLLIER COUNTY AERIAL PHOTOGRAMMETRIC TOPOGRAPHIC MAPPING PROJECTS



APPENDIX "A"